

Appl. No : 09/262,000
Amdt. dated : 01/26/04
Reply to Office Action of 12/02/03

Amendments to the Claims:

Claims 1, 7: (cancelled).

8. (previously submitted) A method of forming a device structure that combines insulating materials for alignments posts and optical interference layers associated with an active device structure in a silicon body comprising:

providing a silicon wafer having a pattern of active device structures therein and thereon;

forming a first metallic layer over the surface of said wafer;

forming a second metallic layer over said first metallic layer, which is used both for connections and for bonding pads;

forming a silicon dioxide insulation over said second metallic layer;

forming a third metallic layer over said layer of silicon dioxide;

forming a photoresist mask over said third metallic layer having a covering over planned pixel locations of said liquid-crystal-on-silicon display device;

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removing said third metallic layer not covered by said photoresist mask;

removing said photoresist mask to provide that each said pixel retains said third metallic layer, which shall act as a mirror reflector for light incident upon said liquid-crystal-on-silicon display device;

depositing optical interference layers of silicon oxide or silicon nitride over said third metallic layer and said silicon dioxide layer; and

forming said alignment posts whereby said alignment post are formed by the process of amorphous silicon by plasma etching upon said silicon substrate.

Claims 9-13: (cancelled).

14. (previously submitted) The method of claim 8 further comprising forming an amorphous silicon layer of thickness between about 0.1 and 5 microns to achieve the desired height of the alignment posts.

15. (previously submitted) The method of claim 8 further comprising forming a photoresist mask over said amorphous

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silicon layer to cover the location of each planned alignment post.

16. (previously submitted) The method of claim 8 further comprising removing said amorphous silicon to form said alignment posts by plasma etch, and removing said photoresist mask.

Claim 17: (cancelled)

18. (previously submitted) The method of claim 38 further comprising forming a PECVD oxide layer of thickness between 0. 1 and 5 microns to achieve the desired height of the alignment posts.

19. (previously submitted) The method of claim 18 further comprising forming a photoresist mask over said PECVD oxide layer to expose the location of each planned alignment post.

20. (previously submitted) The method of claim 19 further comprising forming post cavities by plasma etching of said PECVD oxide layer.

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21. (previously submitted) The method of claim 20 further comprising plasma enhanced chemical vapor deposition of silicon nitride into said post cavities.

22. (previously submitted) The method of claim 21 further comprising etch-back removal of said silicon nitride, except that silicon nitride deposited in said post cavities.

23. (previously submitted) The method of claim 22 further comprising removing the PECVD oxide layer by wet etch (such as HF or buffered HF) to form said silicon nitride alignment posts, and removing said photoresist mask.

Claim 24-37: (cancelled).

38. (previously submitted) A method of forming a device structure that combines insulating materials for alignments posts and optical interference layers associated with an active device structure in a silicon body comprising:

providing a silicon wafer having a pattern of active device structures therein and thereon;

forming a first metallic layer over the surface of said wafer;

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forming a second metallic layer over said first metallic layer, which is used both for connections and for bonding pads;

forming a silicon dioxide insulation over said second metallic layer;

forming a third metallic layer over said layer of silicon dioxide;

forming a photoresist mask over said third metallic layer having a covering over planned pixel locations of said liquid-crystal-on-silicon display device;

removing said third metallic layer not covered by said photoresist mask;

removing said photoresist mask to provide that each said pixel retains said third metallic layer, which shall act as a mirror reflector for light incident upon said liquid-crystal-on-silicon display device;

depositing optical interference layers of silicon oxide or silicon nitride over said third metallic layer and said silicon dioxide layer; and

forming said alignment posts by the process of silicon nitride by plug filling upon the silicon substrate.

Claims 39-40: (cancelled).